IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

ADASA INC.,	§	Case No.: _____
	§	
Plaintiff,	§	**COMPLAINT FOR PATENT INFRINGEMENT**
	§	
v.	§	
	§	**JURY TRIAL DEMANDED**
R-PAC INTERNATIONAL LLC (f/k/a R-Pac International Corp., and f/k/a RIC Merger Sub LLC)	§	
	§	
Defendant.	§	

Plaintiff ADASA INC. ("Plaintiff") files this Original Complaint against Defendant R-PAC INTERNATIONAL CORP., alleging as follows:

I. THE PARTIES

1. ADASA INC. ("Plaintiff") is a corporation organized and existing under the laws of the State of Oregon, with a principal place of business in Eugene, Oregon.

2. Defendant R-PAC INTERNATIONAL LLC (f/k/a R-Pac International Corp., and f/k/a RIC Merger Sub LLC) ("RPac" or "Defendant") is a limited liability company organized and existing under the laws of the State of New York. RPac maintains its global headquarters (and principal place of business) at 132 West 36th Street, 7th Floor, New York, New York 10018. RPac may be served through its registered agent Corporation Service Company at 80 State Street, Albany, New York 12207.

II. JURISDICTION AND VENUE

3. Plaintiff's claims for patent infringement against RPac arise under the patent laws of the United States, including 35 U.S.C. §§ 271 and 281. Consequently, this Court has exclusive jurisdiction of such action under Title 28 U.S.C. § 1331 and 1338.

4. RPac is a limited liability company organized and existing in New York. RPac resides within this District and Division by virtue of, at least, the presence of its global headquarters at 132 West 36th Street, 7th Floor, New York, New York 10018.[1] Accordingly, venue is proper and convenient in this District and Division.

5. In addition to its residing within this District, RPac is subject to both the specific and general personal jurisdiction of this Court due to its established, continuous and systematic contacts with this District. RPac operates its retail radio frequency identification (RFID) tag business from its headquarters within this District. Upon information and belief, the Accused Products described herein, which comprise encoded RFID tags commonly used for item-level product tagging, are developed and/or sold from RPac locations in the U.S. These locations include, at least, RPac's global headquarters within this District. Some of the Accused Products are then sold and/or imported throughout the U.S., including to retailers and other end users conducting business within this District, by RPac and/or its wholesalers and distributors. By doing so, RPac infringes Plaintiff's patent rights, with such infringing acts occurring within this District and giving rise to this action.

6. R-Pac has sufficient contacts with this forum such that the exercise of jurisdiction over it would not offend traditional notions of fair play and substantial justice.

[1] See RPac locations map available at URL: https://www.r-pac.com/contact.php.

7. For at least the foregoing reasons, this Court has personal jurisdiction over RPac and venue is proper pursuant to 28 U.S.C. §§ 1391(b)(1), (2) and (c)(2) and 28 U.S.C. § 1400(b), respectively.

III. BACKGROUND OF ADASA AND THE '967 PATENT

8. Mr. McAllister, founder of Plaintiff ADASA, Inc. and named inventor of US Patent No. 9,798,96, has worked with and in the RFID industry since the early 1990s. Mr. McAllister founded ADASA in 2004 to develop RFID tagging products and solutions.

9. At the time McAllister founded ADASA, the RFID industry was beginning to challenge the then-predominant method of using individual bar codes to keep track of merchandise. The industry has since developed standards and guidelines for encoding data onto the RFID tags to provide additional information beyond what can be stored in a barcode, which allows for identifying and tracking individual items in the supply chain.

10. As a brief technical background, in the RFID industry, and particularly for item-level merchandise tracking applications, the memory bank of an RFID tag is encoded with an Electronic Product Code ("EPC"), which is an identifier for an item in the supply chain to uniquely identify that particular item. This identifier is serialized to be unique for avoidance of duplicate numbers among items in the supply chain. The EPC can be in a format in accordance with one of various EPC tag data standards set by GS1 for a serialized identifier, such as a Serialized Global Trade Item Number (SGTIN), Serial Shipping Container Code (SSCC), Serial Global Location Number (SGLN), or the like.

11. For the SGTIN format, the EPC contains "object class" information and a "serial number." The "object class" information includes, among other things, a GS1 "company prefix," which identifies the managing organization responsible for the item (*i.e.*, the brand owner) and an

"item reference number" which identifies the class of item offered by a brand owner (which generally corresponds to the UPC or SKU of a bar code).

12. The "object class" information of the SGTIN is not unique in and of itself. The function of this section of a SGTIN format is to identify different types of products that may be sold by a particular brand owner. For example, a brand owner (such as Macys or JC Penny) may assign a particular product line of its men's pants an "object class" number. With such a designation, each pair of that type of men's pants would have a common "object class" number, but each specific pair of men's pants within that type would not be unique without further identification. Therefore, in order to provide a unique identifier and avoid duplication of numbers, the brand owner is responsible for assigning a unique serial number for each item within an object class. The brand owner can delegate the assignment of the serial number to another party or parties, however the brand owner retains ultimate responsibility for managing assignment of the serial number. The combination of an object class and unique serial number provides a unique object number that is contained within the EPC.

13. In early 2008, McAllister recognized the challenge in the industry that there was not a reliable way to ensure global uniqueness of the EPC for items within one object class when the RFID tags are encoded by different encoders in different locations across the distribution chain. Prior to Mr. McAllister's invention, other methods of managing and assigning EPCs did not provide the level of specificity in managing the assignment of the EPCs taught in the '967 Patent or ensure that the EPC provided to an item would be globally unique without requiring real-time access to a central database to assign the next available unique EPC to each item in an object class.

14. This is exemplified by the RFID industry's use of the "EPC Pure Identity URI" methodology. The EPC Pure Identity is what is known as a canonical form, using a finite sequence

of decimal digits, punctuated by periods. In this format, no attention is given to managing the uniqueness of the EPC on the "binary" level (*i.e.*, at the zeroes and ones that make up the most basic bits of the code at the machine level), rather choosing a simpler and less effective "decimal" or "hexadecimal" level representation of the EPC that is in a human readable format. For example, a "decimal" EPC Pure Identity URI may read as follows:

0017457.057157.338690212

The "binary" representation for this data when encoded in SGTIN-96 format into an RFID tag would be:

00110000001101000000000100010000110001000011011111010001010000000001010000110000000000000010100100

The EPC Pure Identity lacks the ability to provide information that uniquely distinguishes between objects of the same object class that, for example, are encoded at one manufacturing facility versus another, unless that information is specifically tracked in a database.

15. To address this challenge, McAllister focused not on the Pure Identity representation of the EPC, but rather more specifically on the binary representation of the EPC. He sought to implement a data structure within the memory of an RFID tag for capturing this type of information, which could operate to ensure uniqueness of an encoded RFID tag. Mr. McAllister developed a memory structure that put to use the higher order bits among those reserved for storing serial number data by configuring those bits for storage of a "most significant bits" ("MSB") sequence. Accordingly, Mr. McAllister's memory structure accommodated storing of information within the memory reserved for storing of a serial identifier value in addition to storing the serial identifier value.

16. In particular, as an example of McAllister's invention, an RFID integrated circuit chip encoded with the SGTIN-96 format has a total of 96 binary bits in its memory bank, with the last 38 bits reserved for storing a "serial number" identifier value:

A typical EPC SGTIN-96 Structure:

Header	Filter / Object Type	Partition	Company Prefix	Item Ref and Indicator	Serial
8 bits	3 bits	3 bits	20- 40 bits	24 - 4 bits	38 bits

McAllister's invention configures an RFID integrated circuit chip's memory structure to store a sequence of most significant bits at the leading bits of the 38-bit memory space reserved for storing a serial identifier value. The remaining bits within this 38-bit memory space would still be used to store a serial identifier value.

17. In an embodiment, McAllister envisioned using the leading bits of the serial number memory space storing an MSB sequence as part of a larger system in which a brand owner could ensure uniqueness for encoded RFID tags by uniquely correlating a distinct MSB sequence to each encoding device within the brand owner's operations. By doing so, each encoding device would be allocated a distinct sector of serial numbers from within the total serial numbers available using the 38-bits of memory reserved for it. This enables each encoder to reliably ensure the uniqueness of the EPC value encoded into every RFID tag commissioned by it. Uniqueness is guaranteed for each item within an object class, and is "baked in" at the machine code (binary) level. This also allows the EPC of the tag to be read by a reader to identify the particular encoder that encoded the tag using the machine level encoding.

18. These benefits can be obtained without requiring constant communication with a central database for ensuring uniqueness of encoded EPC data and, thereby, reduces or eliminates

certain communications delays during encoding operations and reduces the demand on the master server and database allocating EPC encoding data.

19. The use of MSBs as claimed in the '967 Patent is scalable for application in instances in which a retail brand owner ("RBO") sources RFID tags for item-level tagging from multiple suppliers which are applied to retail items simultaneously at many disparate factory locations. For example, an RBO may require an RFID tag provider to incorporate a specific MSB sequence at the leading bits for every tag it produces. By implementing a particular sequence of MSBs, a sector (or subset) of available serial number identifier values is delineated for use by the commissioning authority to which the particular MSB sequence is allocated. All EPC data encoded thereby will be inclusive of the MSBs and duplicates encodings to those made by any other commissioning authority are avoided. This can be applied by RBOs with respect to each RFID tag provider from which it sources item-level RFID tags to ensure that two suppliers (SML and Avery Dennison, e.g.) will not produce duplicate RFID tags, even if simultaneously tagging like items at different locations and without any single central authority overseeing the concurrent operations of both suppliers.

IV. THE PATENT-IN-SUIT

20. On October 24, 2017, U.S. Patent No. 9,798,967 ("the '967 Patent") was duly and legally issued for "SYSTEMS, METHODS, AND DEVICES FOR COMMISSIONING WIRELESS SENSORS" to Mr. Clarke McAllister, the inventor. The claims of the '967 Patent have been found, as a matter of law, to be entitled to a claim of priority to the filing date of parent Non-Provisional Patent Application No. 12/124,768, filed on May 21, 2008. The '967 Patent was subsequently assigned to Mr. McAllister's company, ADASA.

21. Upon its issuance, the '967 Patent was subject to *ex parte* reexamination, Reexamination Request No. 90/014,052, petitioned for by Avery Dennison Corporation on November 29, 2017. The reexamination proceeding confirmed the patentability of all claims of the '967 Patent and a Reexamination Certificate was issued by the USPTO on July 30, 2018. A true and correct copy of the '967 Patent with the appended Reexamination Certificate is attached hereto as Exhibit A. Certain amendments to the claims were entered during reexamination to clarify the scope of the inventions claimed. These clarifying amendments were deemed non-substantive by the Examiners at the USPTO. This finding was subsequently affirmed as a matter of law in patent infringement proceedings before the Federal District Court for the District of Oregon.

22. Plaintiff is the owner of the '967 Patent with the exclusive right to enforce the '967 Patent against infringers, and collect damages for all relevant times, including the right to prosecute this action.

23. Plaintiff or its predecessors-in-interest have satisfied all statutory obligations required to collect pre-filing damages for the full period allowed by law for infringement of the '967 Patent. More specifically, to the extent Plaintiff has practiced the inventions claimed in the '967 Patent, Plaintiff has complied with the marking requirement of 35 USC 287(a). Further, to the extent Plaintiff has permitted others to practice the inventions claimed in the '967 Patent under limited license, compliance with 35 USC 287(a) was required of all such licensees.

24. The '967 Patent generally relates to commissioned radio frequency identification ("RFID") transponders (or tags), and systems and methods for making and using the same. The '967 Patent teaches and claims an RFID transponder comprising an integrated circuit chip having an encoded memory structure operable to ensure uniqueness of the encoded RFID transponder.

25. The inventions claimed in the '967 Patent provided advantages over existing RFID tags, and for systems and methods for commissioning the same. Namely, practice of the inventions claimed accommodated "on-demand" encoding operations "with no external authorizations or queries required on a transponder-by-transponder basis." This enabled many simultaneous RFID tag commissioning operations to proceed without the need for continuous connectivity to a central database, and without worry of inadvertently creating duplicate RFID tags.

26. Eliminating the need for a continuous connection to a central database while still ensuring uniqueness advantageously reduces or eliminates delays in existing commissioning processes attendant to the then-existing requirement for continuous communication with a central database. Practice of the inventions claimed in the '967 Patent permits commissioning operations to continue at times when access to a central database is unavailable, including during network connection failures and in instances where a brand owner or manufacturer partners with more than one RFID tag provider across its global operations. Elimination of these points of failure within RFID tag commissioning processes improves operational effectiveness and efficiency, while providing an additional safeguard within commissioning systems for guaranteeing uniqueness of commissioned RFID tags.

V. ADOPTION OF THE '967 PATENT BY THE RFID INDUSTRY

27. In the years after Mr. McAllister originally filed for patent protection for his invention, his inventions were widely adopted throughout the RFID industry by tag providers in response to customer "mandates" requiring use of McAllister's innovations. Mr. McAllister initially sought to enforce his valuable patent rights through licensing RFID tag providers known to infringe his patent rights, but those efforts were consistently rebuffed. Mr. McAllister has been forced to enforce his valuable intellectual property rights through litigation.

28. ADASA has successfully done so. ADASA filed a lawsuit against Avery Dennison Corporation ("Avery Dennison") alleging patent infringement of claims of the '967 Patent (the "Avery Dennison Litigation"). In 2021, a jury found unanimously that Avery Dennison infringed claims of the '967 Patent in connection with Avery Dennison's making and selling RFID tags comprising the inventive hardware-based data structure claimed within the '967 Patent. Even before the jury trial, the Court found infringement as a matter of law with respect to a first set of accused RFID tag products. Infringing RFID tags represented approximately half of Avery Dennison's disclosed RFID tag sales.

29. The Avery Dennison Litigation jury found $0.0045 per RFID tag was a reasonable royalty to account for Avery Dennison's infringement. However, this jury rate was artificially repressed due to discovery misconduct at trial by Avery Dennison when Avery Dennison failed to properly disclose all infringing product until after trial. Avery Dennison was subsequently sanctioned for this misconduct and the court in that matter applied a post-trial rate of $0.009 per tag, which was consistent with the testimony of ADASA's damages expert and ADASA's previous licensing history. Applying the improperly reduced $0.0045 royalty to the large volume of infringing tags that were actually disclosed at trial made and sold by Avery Dennison yielded an award of over $35 million in damages. Additional damages increased the total award to over $ 62 million.

30. Every defense raised by Avery Dennison was rejected, including Avery Dennison's multiple challenges to the validity of the asserted claims of the '967 Patent which were found deficient in each of three separate venues: (a) in front of the USPTO; (b) as a matter of law before the Court during the Avery Dennison Litigation; and (c) additionally before a jury.

31. First, during the pendency of the Avery Dennison Litigation, Avery Dennison petitioned the United States Patent and Trademark Office ("USPTO") to invalidate the claims of the '967 Patent in light of four alleged prior art references. The USPTO entered a clarifying amendment within the challenged claims and found all claims of the '967 Patent patentable over all known prior art, whether raised during the reexamination proceeding or identified during the original prosecution. This finding was made by a panel comprising three Examiners. At the close of this *ex parte* reexamination, a Reexamination Certificate was entered for the '967 Patent affirming the patentability of all claims, as presented in the Reexamination Certificate. These claims were ultimately found to be infringed by Avery Dennison.

32. Next, pre-jury trial, the Avery Dennison Litigation Court ruled that several of Avery Dennison's asserted invalidity defenses failed as a matter of law. More specifically, the Court rejected Avery Dennison's arguments that the '967 Patent was invalid as anticipated or obvious, to the point that Avery Dennison intentionally chose not to proceed with any invalidity theories at trial with the jury. The Court also found that ADASA's patent was entitled to its asserted May 2008 priority date, which placed it well before many industry manufacturers ultimately adopted the technology.

33. The Court also determined that the claims of the '967 Patent were addressed to patent-eligible subject matter under the *Alice*/Section 101 legal standard, specifically holding that claim 1 of the '967 Patent was not directed to an abstract idea but rather to "an encoded RFID transponder implemented with a memory structure accommodating a specific hardware-based number scheme." This determination was subsequently affirmed by the Federal Circuit, which found the asserted claims "directed to a specific, hardware-based RFID serial number data structure designed to enable technological improvements to the commissioning process" and thus

directed toward patent-eligible subject matter under both steps of the legal analysis. Avery Dennison's petition for review of the Federal Circuit Court decision by the United States Supreme Court was denied.

34. Finally, remand proceedings were held in July 2023 on two invalidity grounds not presented during the original trial. The remand jury unanimously rejected these last remaining defenses and, again, affirmed the validity of the asserted claims of the '967 Patent.

35. As a result of continuing damages that accrued during the appellate and remand process, the amended final judgment against Avery Dennison for its infringement of the claims of the '967 Patent totaled more than $88M. This multi-year result confirms the value of Mr. McAllister's inventions to the RFID industry.

VI. THE ACCUSED PRODUCTS OF RPAC

36. Plaintiff incorporates by reference the preceding Paragraphs of this Complaint as if fully set forth herein.

37. RPac offers and sells packaging, branding, and supply chain solutions to its customers around the world.[2] RPac's supply chain solutions business includes "RFID Solutions" for use in item-level tagging of consumer goods. RPac describes itself as "a global leader in delivering innovative branding and packaging solutions [that leads] the industry in item-level tagging for retailers from source-to-store."[3]

38. RPac sells its RFID solutions comprising RFID tags, hardware and software for encoding and reading RFID tag data, data management solutions for ordering, encoding, and using RFID tags, and other retail services for item tracking through the supply chain.[4]

[2] See RPac's website at URL: https://www.r-pac.com/.
[3] Exh. D at 1.
[4] Exh. D at 1-2.

39. RPac provides these RFID products and services to retail brand owners, manufacturers, and retailers of consumer goods. RPac's customers include Macy's, Walmart, HBC, Lord & Taylor, Saks 5th Avenue, Kohl's, Target, JC Penney, Sears, and Levi's, among others.[5]

40. RPac sells encoded RFID tags directly its customers that are encoded by RPac at one or more of its Service Bureau locations and then are delivered to customers for item-level tagging of consumer goods.[6] Additionally, RPac offers "printer/encoder solutions for factory-level or distribution center production" for use by its customers to encode RFID tags using RPac-provided tags and encoding hardware and software.[7]

41. RPac's encoded RFID tag products comprise several hardware and data components. The hardware components include an inlay comprising an antenna and integrated circuit chip affixed to a substrate material.[8] Inlays used by RPac comprise integrated circuit chips made by Alien, Impinj, and NXP, among others.[9]

What is an RFID tag?

RFID tags are the finished product for use by a retailer, supplier, etc... We are focused on a subset – passive (without a battery), Gen2 (which follows a set of standards selected by the industry) and UHF (ultra-high frequency).

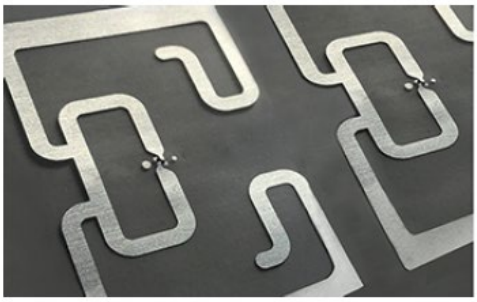
Some terms which you may see are as follows:

- Dry Inlay – this is the combination of the antenna and chip on a substrate. The substrate (backing) is typically made of a plastic film (PET).
- Wet Inlay – this is the dry inlay with adhesive applied
- Paper faced inlay - It is the inlay combined with a paper facing where printing can be applied
- Chip – this is the smarts of the tag. When combined with the antenna it can be encoded with specific information (Electronic Product Code) and read by a reader. The Primary chip manufacturers are Alien, Impinj, and NXP.
- EPC – Electronic Product Code is what is stored on the tag by encoding. This EPC is layman's terms is the barcode with a unique serial number to make each tag unique to another.

[5] See, Exh. B at 13; Exh. C; Exh. E at 2; Exh. G.
[6] Exh. D at 1; Exh. E at 2; Exh. F.
[7] Exh. D at 1; Exh. E at 2
[8] Exh. B at 1.
[9] Exh. B at 4.

42. Rpac does not make its own inlays. Rather, it "works with multiple manufacturers" of inlays, describing its RFID tag business as being "inlay agnostic" yet providing "inlay solutions approved by all retailers worldwide and the RFID Lab at Auburn University ARC specifications."[10]

43. A listing of inlays meeting ARC specification and quality certification is maintained and published by the University of Auburn.[11] Upon information and belief, RPac makes its RFID tag products using any of these ARC Enrolled Inlays, as needed, in response to the needs, specification, and/or requirements of RPac's customers. RPac sources its inlays from third party manufacturers, which are then incorporated into labels and hangtags that are affixed to consumer products[12]:



RFID Inlay Solutions

r-pac works with multiple inlay manufacturers to ensure a best-value solution for your needs. r-pac is inlay agnostic and can provide inlay solutions approved by all retailers worldwide and the RFID Lab at Auburn University ARC specifications.

With approved inlays, r-pac's packaging design and development expertise delivers world class custom converted hangtags and labels integrated with RFID. Print quality, color fidelity and brand integrity are of the utmost importance and do not need to be sacrificed when working with r-pac on your RFID program.

[10] Exh. D at 1.
[11] *See, generally*, Exh. J. The current list of ARC Enrolled Inlays is available at URL: https://rfidarc.auburn.edu/temp/inlays/arc-enrolled-inlays.php.
[12] Exh. D at 1; see, also, https://www.r-pac.com/variable-data-solutions.php.

44. Regardless of which sales channel used to sell its RFID tag products and services, RPac does not provide a catalogue of RFID tag / label configurations identified by product name or model number. Rather, upon information and belief, RPac's customers set forth specifications and characteristics for RFID tags it orders from RPac through RPac's ordering platform. These are used to select an appropriate inlay to be incorporated into a sticker, hangtag, sewn-in, or CARE label. The Accused Products therefore include any ARC Enrolled Inlay converted by RPac to any of a sticker, hangtag, sewn-in, or CARE label for use in item-level RFID tagging, which has been encoded using the data structure claimed in the '967 Patent, as described below.

45. In item-level tagging applications, the encoded data stored within the memory of an RFID tag typically comprises an EPC. Each EPC must be unique and used with only one RFID tag (i.e., no duplication) for the benefits of item-level tagging to be realized[13]:

[13] Exh. B at 5, 7.

What is a bit and why is it important for us to understand?

A bit is a binary representation of a number. We normally work in base 10 which is 0-9. Binary is base 2 which is 0 and 1 only.

The importance in understanding binary in Electronic Product Codes is the portion related to serialization. We never want to have duplicates in tagging. Duplicates will look to the reader to be the exact same product. The serialization portion is how we make one product with the same GTIN (barcode) look different from another.

Why is encoding tags important and how do you ensure you meet customer requirements?

Since duplication negatively effects the benefits of each customers' use case for RFID, eliminating duplication is a tremendous benefit. Each product is counted, inventory accuracy is achieved leading to other benefits such as shelf availability, etc...

46. RPac developed its own proprietary data management system, referred to as 'r-trac,' for receiving orders for encoded RFID tags and generating unique data for encoding its RFID tag products in response.[14] Through r-trac, RPac has "delivered hundreds of millions of uniquely serialized EPC products" as of 2020.[15]

r-trac™ Data Management

r-pac has developed a proprietary web-based data management solution called r-trac™ to manage data-intensive programs. r-trac™ is a proven system for managing EPCs with hundreds of millions of tags already "commissioned" without error or duplication. In addition to EPC encoding, r-trac™ serves as a module based suite of solutions and services ranging from inventory, ordering and reporting of high volume activity.

[14] Exh. B at 19-20; Exh. D at 2; Exh. F.
[15] Exh. D at 2.

r-trac

- Complete system to manage data and serialization.
- Is used for RFID and non-RFID.
- Is used for both Service Bureau and in-plant print solutions

r-pac has r-trac™ and the experience to provide finished tags worldwide, on schedule, and at competitive prices.
r-trac is a simple to use interface that guarantees success for our customers. Through this cloud-based interface, users can design tags for their specific needs and guarantee that no duplicate serialization is produced

47. RPac's R-trac system is responsible for generating unique EPCs for RFID tags encoded at RPac's service bureaus and for RFID tags encoded at customer locations using RPac hardware and software. RPac states that:

> "For end users looking to encode and print their own tags, r-pac offers its r-trac encoding software, while its service bureaus can encode the tags with unique EPC ***serial numbers that are then stored on a cloud-based r-pac server*** that its customers can access, via a portal, using a password. Users who print and encode RFID labels onsite, Arguin says, can also have those labels' ***EPC numbers stored on the cloud-based server via a simple Web interface, and the labels can be ordered at the same portal***."[16]

[16] Exh. E at 2.

48. Typically, RPac encodes the integrated circuit chip memory of an RFID tag pursuant to GS1 standards and in accordance with the specifications and schemas configured by RPac in view of its customer's intended use(s) and/or customer-provided serialization requirements.

49. RPac encodes the RFID tags with an EPC. The EPC is encoded as a binary encoding within the memory structure of the RFID integrated circuit chip of the tag having an object class information space and a unique serial number space. The object class information space is encoded with the object class information for an item and the unique serial number space is encoded with a unique serial number for that specific item within that object class.

50. For certain among RPac's customers, a limited number of most significant bits of the serial number space within the EPC binary encoding is used. The MSBs uniquely correspond to a block of serial numbers that may have been allocated to a particular encoder in use to encode RFID tags for a particular brand owner. In some cases, the use of MSBs may be required by a brand owner. The remaining bits of lesser significance comprising the unique serial number space are encoded to form one unique serial number.

51. In particular, RPac encodes an EPC SGTIN-96 binary encoding in the memory bank of the RFID tags and labels, with the unique EPC being encoded in binary form. The 38-bit serial number portion of the encoded EPC comprises the particular set of most significant bits corresponding to the most significant bits allocated to the encoder for the object class of the items with which the RFID tags and labels are to be used. For example, schemas and scanned RFID tags associated with various Global Company Prefixes of known RPac customers reflect that up to 18 most significant bits of the 38-bit serial number section are fixed to correspond to the most significant bits of an allocated block of serial numbers. The remaining 20 or more bits of lesser

significance are encoded with one unique serial number instance from the allocated block of serial numbers.

52. The specific encoding format(s) implemented by brand owners detailing the particular EPC structure(s) used thereby to commission RFID tags are not publicly available. Nonetheless, specifics relating to these formats may be discerned using an RFID reader to scan and collect EPCs encoded into the memories of RFID tags affixed to goods displayed in retail stores.

53. As an example of RPac's encoding products and services for its customers, publicly available documents and information published by both RPac,[17] Walmart,[18] and industry journals[19] confirm that RPac is, and has been, an approved RFID tag provider for item-level tagging of products sold in Walmart stores by Walmart and others.

54. In view of the foregoing, ADASA compiled EPC encoding data from RFID tags in use in Walmart stores in 2017, 2020, and in September 2023. The EPC data obtained confirms that many of the RFID tags in use in Walmart stores infringe claims of the '967 Patent, including claim 1. More specifically, the scanned data confirms widespread use of ADASA's claimed "most significant bits" within the serial number space of scanned RFID tags. In view of RPac being one of only a select few approved providers of RFID tags and inlays for use on products sold in Walmart stores, upon information and belief, the scanned RFID tag data demonstrates the making and selling of infringing RFID tags by RPac for use by Walmart and/or Walmart's suppliers.

[17] Exh. B (excerpt from RPac RFID Solutions presentation) at slide 13 (identifying RPac as an approved RFID provider for Walmart.
[18] Exh. C (excerpted slides from 2024 "Walmart Supply Chain Standards" presentation) at slide 262 (identifying Rpac as one of four approved providers of RFID tag inlays).
[19] Exh. E at 2 ("[RPac] now provides RFID labels to Wal-Mart's product suppliers…").

55. By way of example, scanned tag data was manually collected from item-level RFID tags on retail products on the shelves in eight Walmart stores. This data was collected in Oregon in 2023. The data was filtered to include only EPCs containing Customer Prefix identifiers owned by Walmart Stores, Inc. The resulting data corresponded to several hundred separate GTINs (i.e., separate product types) and totaled 9,536 tag reads (i.e., 9,536 individually tagged products). Inspection of the respective data stored in the 38-bit serial number space for each of these encodings shows the use of MSBs.

56. The scanned data shows that every tag scanned for nearly half of the GTINs comprise the exact same data sequence within the leading 18-bits of the serial number space. More specifically, tags corresponding to 405 separate GTINs exclusively comprised an identical 18-bit sequence of leading bits. This is not coincidence as over 262,000 sequences of '1's and '0's can be generated over 18-bits of memory space. Yet, the scanned data reveals that every tag scanned across a wide range of product types taken from eight different stores throughout Oregon began with the exact same 18-bit sequence.

57. The data revealed three additional 18-bit data sequences that were exclusively used in connection with every RFID tag for a significant amount of GTINs. Those 18-bit sequences were implemented with: 1,633 tags corresponding to 172 separate GTINs; 1,402 tags corresponding to 171 separate GTINs; and, 792 tags corresponding to 102 separate GTINs. Altogether, these four leading bit sequences correspond to nearly 86% of all scanned tags.

58. In addition to the foregoing, analysis of the trailing 20-bit sequences of data for the scanned tags further confirms that the consistent use of four specific leading bit sequences is not happenstance. While the data within the first 18-bits is static, the data within the trailing 20-bits shows remarkable variation throughout the remaining 20-bit range. This high variability is

observed even in instances where the quantity of tags scanned for a particular GTIN is low, often fewer than ten, as shown in the table below:

GTIN	Scraped Serial Number Data Stored[20]	# Tags
00681131022446	0101101101000101000**********	9
00681131308298	0101101101000101000**********	8
00681131308335	0101101101000101000**********	14
00681131310161	0101101101000101000**********	36
00681131310918	0101101101000101000**********	34
00681131312455	0101101101000101000**********	20
00681131358668	0101101101000101000**********	15
00681131358859	0101101101000101000**********	11
00681131359306	0101101101000101000**********	7
00681131360081	0101101101000101000**********	9
00681131414081	0101101101000101000**********	64
00681131415521	0101101101000101000**********	18
00681131422284	0101101101000101000**********	6
00681131310260	0101101101000101000********1*1******1*	5
00681131357807	0101101101000101000********00**********	8
00681131310123	0101101101000101000********1**********	14
00681131310550	0101101101000101000*******0**********	8
00681131359023	0101101101000101000*******0**********	7
00681131397742	0101101101000101000***0****1**********	8
00681131069496	0101101101000101000***0*1**********	13
00681131308434	0101101101000101000***11**0**********	13
00681131308328	0101101101000101000**0**********	10
00681131414074	0101101101000101000**0*00**********	20
00681131308748	0101101101000101000**1**********	9

59. The low number of scanned tags for each respective GTIN in combination with the consistently high variability of the data stored in the trailing 20-bits of the serial number space strongly suggest that the values stored in the trailing bits are not allocated sequentially. Taken in

[20] A '0' value within bit sequence indicates that every tag for the corresponding GTIN identified included a '0' value for that memory location. Likewise, a '1' indicates that all scanned tags for that GTIN had a '1' value stored in that memory location. Conversely, an '*' indicates that the data in that location varied among '0's and '1's.

concert, the scanned data confirms that the serial number space is encoded with a static sequence of most significant bits followed by a randomly allocated (and not repeated) sequence of lesser significant bits at the trailing end. Use of this structure within the serial number space of the RFID tag memory practices the limitations regarding the use of most significant bits within the serial number space of the RFID tags claimed in the '967 Patent.

60. While not all of the scanned RFID tags were necessarily encoded just by RPac, this evidence showing consistent and frequent use of the inventions claimed in the '967 Patent by RFID tags present in Walmart stores, coupled with RPac's being one of a limited number of approved RFID tag suppliers for Walmart, leads to the conclusion that RPac makes and sells infringing RFID tags to at least Walmart. To the extent RPac encodes any of the tags and labels identified in the above paragraphs of this complaint or additional RFID tags and labels not identified therein that use the format specified herein, RPac has infringed the identified claims of the '967 Patent.

61. Additionally, or alternatively, RPac affirms that it encodes EPC data for its customers in accordance with "specific customer requests for serialization" under which "customers will desire to hold some of the serialization bits for their own purpose," including at times "when they want to identify who is doing the actual encoding of a tag."[21] RPac provides the following description of the type of serialization solutions it implements in response to customer requirements:

[21] Exh. B at 6 ("Specific Customer Requests for Serialization" slide). The complete presentation is available online at URL: https://neecom.org/wp-content/uploads/2015/10/8-Paul-Arguin-RFID-101-and-Value-Proposition-NEECOM-10-15-15.pdf.

Specific Customer Requests for the Serialization

At times, customers will desire to hold some of the serialization bits for their own purpose. A specific example is when they want to identify who is doing the actual encoding of a tag.

One retailer, for instance, requested that we encode the tags with a prefix of 110. The 110 will take the first 3 bits of the 38 bits reserved for serialization. Upon scanning, they will know that the specific tag is an r-pac tag if it starts with a 110 for the serialization portion of the EPC.

This still will provide us with over 34 Billion unique numbers for a style/color/size of a specific UPC. This also guarantees that r-pac's numbers will be unique to others encoding even the same product since each will have the serialization start with a different 3 bits.

62. Upon information and belief, this foregoing information was included within a presentation made by an RPac employee representative to and RFID industry group, the New England Electronic Commerce User's Group (NEECOM), during its 2015 Fall Conference held on Oct. 15, 2015 in Westborough, MA. The serialization solution described contemplates inclusion of a static, three-bit sequence ("110") occupying the leading three bits of the 38-bit serial number space of an EPC, while the remaining 35 trailing bits are used to store an incrementing index value.

63. RFID tags encoded by RPac for this customer of RPac in the manner described practice the use of MSBs within the serial number space as claimed in the '967 Patent and, therefore, constitute infringement. Likewise, to the extent RPac has encoded RFID tags for other customers in a like manner, RPac has infringed the claims of the '967 Patent.

VI. FIRST CLAIM FOR RELIEF (Patent Infringement)

64. Plaintiff incorporates by reference the preceding Paragraphs of this Complaint as if fully set forth herein.

A. Direct Infringement by RPac under 35 U.S.C. § 271(a)

65. RPac directly infringes claims of the '967 Patent pursuant to 35 U.S.C. § 271(a), either literally or under the doctrine of equivalents, to the extent it uses, sells, offers for sale in the

U.S., or imports into the U.S. encoded RFID tags and labels that implement the data structure claimed in at least claim 1 of the '967 Patent. RPac makes and sells these infringing RFID tag products and services to its customers, including retail brand owners (RBOs), manufacturers, distributors, retailers and other end users.

66. More specifically, to the extent RPac sells or offers for sale encoded RFID tags to its customers that are made by RPac at its Service Bureau locations and are encoded with EPCs comprising an object class information space and a unique serial number space, with the unique serial number space implementing a data structure inclusive of a sequence of MSBs and remaining bits of lesser significance, RPac directly infringes at least claim 1 of the '967 Patent.

67. RPac operates sales offices across the United States, including within this District, from which it is believed to negotiate and enter sales contracts or other master agreements with its customers under which part orders for infringing RFID tags products are placed and consummated.[22] All such RFID tags are offered for sale and sold in the U.S., regardless of where they are physically made or where they are delivered to a customer.

[22] See RPac location map available at URL: https://www.r-pac.com/contact.php.

68. RPac offers for sale and sells RFID tags encoded at its service bureau locations and others encoded on-demand at customer locations using RPac-provided tags, hardware, software, and data management services. Encoding is affected in accordance with schema and formats defining the data structure which are developed by RPac in response to customer needs and serialization specifications. Service bureau products are encoded by RPac personnel directly at RPac service bureau locations. RFID tags and labels sold in connection with in-plant printing services ("IPPS") are encoded using RPac hardware and software at customer locations. For IPPS customers, RPac supplies all necessary hardware, software, the RFID transponders, and encoded data for encoding RFID tags to occur at a customer facility.

69. For all RPac customers, whether service bureau or IPPS customers, upon information and belief, RPac and its customers enter purchase or supply agreements under which subsequent part orders are made. Upon information and belief, following formation of an agreement under which formats, schemas, and prices for the RFID tags and labels are set, RPac customers purchase encoded RFID tags and labels via submission of part orders through software and an online interface accessible by RPac's personnel or customers. RPac's RFID ordering portal is sometimes referred to as "r-trac" and is described as "our proprietary, web-based data management system."[23]

70. Upon information and belief, part order data is directed via RPac's software to its U.S. offices and server locations hosting its r-trac data management software for use thereby to generate and transmit encoding data comprising EPCs for commissioning the RFID tags ordered. This encoding data is then transmitted to RPac's printer/encoders at the encoding location to commission RFID tags and fulfill the part order. Upon information and belief, therefore, all

[23] Exh. F; see, also, Exh. B at 19; Exh. G; Exh. E at 2.

encoded RFID tags for item-level tagging made or sold by RPac comprise unique EPC data that is generated by r-trac from within the U.S.

71. Upon information and belief, part order data including at least the quantity of RFID tags and labels ordered is directed to RPac locations in the U.S. for billing and invoicing each part order upon receipt thereof, with such billing in U.S. dollars.

72. Upon information and belief, RPac's agreements with its customers are negotiated in the U.S. by RPac personnel, including at its headquarters within this District. These agreements detail the procedures to be employed for ensuring that all RFID tags and labels sold are encoded with unique object numbers comprising object class information and a serial number utilizing most significant bits, among other general terms. The negotiation of agreements includes submission of an initial proposal by RPac to a potential customer that proposes schemas and formats to be used to generate unique object numbers to be encoded into RFID tags and labels sold thereunder.

73. Upon information and belief, RPac retains control over serialization management (i.e., the allocation and assignment of unique object numbers for encoding) for its RFID customers. RPac emphasizes the importance of uniqueness within item level RFID tagging systems. Further, RPac touts its service bureau operations and r-trac data management system as providing unique encoding data, regardless of whether encoding is affected by RPac at one of its Service Bureaus or by an RPac customer using IPPS.

74. In accordance with this process for setting up and processing part orders following execution of a purchase or supply agreement with its customers, RPac offers to sell and sells its RFID tags and labels from the United States, regardless of where encoding occurs. Upon information and belief, its web-based ordering and invoicing platform operates through RPac server locations within the U.S. This scheme of receiving and fulfilling individual part orders for

its customers therefore represents an independent basis for ADASA infringement allegations against RPac under 35 U.S.C. § 271(a).

75. ADASA has satisfied all statutory obligations required to collect pre-filing damages for the full period allowed by law for infringement of the '967 Patent and therefore is entitled to past damages for RPac's infringement. More specifically, to the extent Plaintiff has practiced the inventions claimed in the '967 Patent, Plaintiff has complied with the marking requirement of 35 USC 287(a). Further, to the extent Plaintiff has permitted others to practice the inventions claimed in the '967 Patent under limited license, compliance with 35 USC 287(a) was required of all such licensees.

76. ADASA has been damaged as a result of RPac's infringing conduct. RPac is, thus, liable to ADASA in an amount that adequately compensates ADASA for RPac's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

B. Direct Infringement by RPac under 35 U.S.C. § 271(f)

77. Additionally, upon information and belief, RPac is liable under 35 U.S.C. § 271(f) for infringement of the '967 Patent, either literally or under the doctrine of equivalents, because it provides from the United States encoding data, including EPCs, comprising unique object numbers implementing the unique structure identified in the claims of the '967 Patent from its U.S.-based server locations executing its r-trac data management software. Unique encoding data is generated by R-trac using defined data structures for each RFID tag ordered and is transmitted to encoding locations, which may be outside of the United States, and operated by RPac or by its customers at the direction of RPac. The unique object numbers are provided with the intent that they be combined with uncommissioned RFID tags and labels to make infringing RFID tags and labels.

78. The unique object numbers are specially made and/or especially adapted for use in accordance with the inventions claimed in the '967 Patent. Upon information and belief, each data file comprising the unique object numbers is intended for use and used only to commission RFID tags and labels.

79. The unique object numbers transmitted are not staple articles or commodities of commerce suitable for substantial non-infringing use. They are known to RPac to be specially made or especially adapted for use in accordance with the inventions claimed in the '967 Patent since at least April 24, 2024 or, alternatively, since the filing of the original complaint in this litigation.

C. Indirect Infringement Under 35 U.S.C. §§ 271(b), (c)

80. Additionally, RPac is liable under 35 U.S.C. §§ 271(b) and (c) for indirect infringement of the '967 Patent, either literally or under the doctrine of equivalents, because it actively induces and/or contributes to the direct infringement of the '967 Patent by its customers who make, use, and/or import encoded RFID tags and labels that use the unique encoded structure identified in the claims of the '967 Patent.

81. For its Service Bureau customers, RPac provides RFID tags and labels encoded with unique object numbers comprising object class information and a serial number utilizing most significant bits to its customers who then import to and/or use the infringing RFID transponders in the United States for item-level tracking and inventory management. RPac's infringing RFID transponder products are especially designed for use via affixing them to goods for scanning to track those goods as they travel through the stream of commerce. This item-level identification and tracking is advertised as providing quick and accurate inventory information for RPac's customers.

82. RPac's customers are instructed to and do affix the infringing RFID transponders to their goods for tracking and inventory purposes, whereby each instance of scanning (i.e., reading) the encoded information stored on an infringing RFID transponder constitutes a use thereof. RPac markets and sells RFID readers to its customers that are used for item tracking and inventorying using the information read from RPac's infringing RFID tags, through its R-trac platform.

83. Such importing and/or use of the infringing RFID tags and labels by RPac's customers directly infringes at least claims 1 of the '967 Patent. RPac makes and sells its infringing RFID tags and labels knowing that they are especially designed for and marketed for such use by its customers to affect item-level tracking and rapid inventorying through use of ADASA's patented technology. For example, RPac offers and provides training on use of its r-trac ordering platform so that customers may use RPac hardware and software to accomplish RFID tagging in its customer's own facilities. This hardware and software allows its customers to affix infringing RFID tags and labels to goods within customer stores, distribution centers, and/or warehouses for immediate use by the customer to begin tracking and inventorying those goods. RPac trains customer personnel on the use of the infringing RFID tags and scanner devices for item-level tracking and inventorying and publicly markets this service and RPac's training by RPac employees that provide "consultation, installation, training, technical support, maintenance and depot service" for its in-plant platform services.

84. RPac makes and sells its infringing RFID tags and labels knowing at least some will be imported to and used in the United States by RPac's customers. For at least some of its customers, such as those having significant or, perhaps, exclusive operations in the United States, RPac makes and sells its infringing RFID tags and labels thereto knowing that most or all will be

imported to and used in the United States. RPac regularly touts its service bureau worldwide presence in allowing customers to tag RFID transponders in multiple places, all while having its RFID headquarters within this district.

85. RPac has had actual notice of its infringement of the claims that were issued in the '967 Patent since receipt of a letter sent on April 24, 2024 to RPac's CEO, Michael Teitelbaum. In addition, RPac has had actual knowledge of ADASA's claims of patent infringement against RPac consistent with those presented herein since at least the filing of the original complaint in this litigation.

86. ADASA has been damaged as a result of RPac's infringing conduct. RPac is, thus, liable to Plaintiff in an amount that adequately compensates ADASA for RPac's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

87. With regard to each theory of infringement presented herein, RPac's infringement of the '967 Patent has been willful, both before the filing of this complaint and continues to be so after filing. RPac has been on notice of its infringement of the '967 Patent since at least April 24, 2024. More specifically, prior to the filing of this complaint, RPac has been aware of the '967 Patent and its infringement through a letter delivered to RPac's senior leadership that outlined ADASA's claims of infringement.

88. Further, upon information and belief, RPac was monitoring ADASA and the '967 Patent through the well-publicized allegations in the above-mentioned Avery Dennison case, which went all the way to the United States Supreme Court. That case was tracked by industry sources, including upon information and belief RPac as the case proceeded and as demonstrated by United States Supreme Court amicus briefs filed by RFID industry entities, such as Impinj,

which provides RFID chips for RPac's encoded RFID products, and by the National Retail Federation, a trade association whose membership includes several of RPac's customers and with whom RPac regularly interacts.[24]

89. Since at least April 2024, RPac's infringement of the '967 patent has been willful, deliberate and intentional by committing these acts of infringement with knowledge of the '967 patent, and after acquiring knowledge of the '967 patent, RPac has continued to commit these acts of infringement knowing, or at worst should have known, that its conduct amounted to infringement of the '967 patent, and thus RPac has acted in reckless disregard of ADASA's patent rights. Since at least April 2024, RPac has been aware of the unjustifiably high risk that its actions constituted and continue to constitute infringement of the '967 patent, and that the '967 Patent is valid.

90. To the extent RPac was not following along with the industry-wide importance of the Avery Dennison case, RPac would have been acting willfully blind to its infringement. More specifically, given the '967 Patent's early priority date before the major manufacturers in the RFID encoding industry (such as RPac) were using ADASA's now-widely implemented technology, RPac would have subjectively believed that there was a high probability that relevant patents, such as ADASA's 967 Patent, directly impacted their ability to encode and sell the RFID transponders that it does today, as described above. Additionally, to the extent that RPac was not following the Avery Dennison Litigation and the '967 Patent, it would have been deliberately taking actions to avoid learning about such facts. By ignoring such widely known news and developments, RPac was intentionally willfully blind to its infringement.

[24] *See*, URL: http://nrfbigshow.nrf.com.437elwb14.blackmesh.com/company/r-pac-international (identifying R-Pac as an exhibitor and sponsor for NRF's 2025 "Retail Big Show.").

91. Because of RPac's past and ongoing willful infringement, ADASA is entitled to enhanced damages under 35 U.S.C. § 284.

VIII. PRAYER FOR RELIEF

Plaintiff requests that the Court find in its favor and against CCL, and that the Court grant Plaintiff the following relief:

a. Judgment that one or more claims of the '967 Patent have been infringed, either literally and/or under the doctrine of equivalents, by RPac, and/or judgment that one or more claims of the '967 Patent have been directly infringed by others and indirectly infringed by RPac, to the extent RPac contributed to or actively induced such direct infringement by others;

b. Judgment that RPac account for and pay to Plaintiff all damages to and costs incurred by Plaintiff because of RPac's infringing activities and other conduct complained of herein;

c. An award of post judgment royalty to compensate for future infringement;

d. That Plaintiff be granted pre-judgment and post-judgment interest on the damages caused to it by reason of RPac's infringing activities and other conduct complained of herein;

e. That this Court declare this an exceptional case and award Plaintiff its reasonable attorney's fees and costs in accordance with 35 U.S.C. § 285;

f. That Plaintiff is entitled to enhanced damages under 35 U.S.C. § 284; and

g. That Plaintiff be granted such other and further relief as the Court may deem just and proper under the circumstances.

JURY DEMAND

Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

Dated: August 12, 2024.

Respectfully submitted,

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